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(71) Applicant (for all designated States except US): **RELIANCE INDUSTRIES LIMITED** [IN/IN]; Reliance Centre, 19, Walchand Hirachand Marg, Ballard Estate, Mumbai 400 038 (IN).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **NADKARNI, Vikas, Madhusudan** [IN/IN]; A-18, Garden Estate, Off. D.P. Road, Aundh, Pune 411 007 (IN). **MUKHOPADHYAY, Anjan, Kumar** [IN/IN]; A-48, Reliance Housing Complex, Mohapada, Rasayani, Raiga 410 222, Maharashtra (IN). **JAIN, Ashwin, Kumar** [IN/IN]; C-6/2/1/1, Sector-18, Cidco Colony, New Panvel, Navi Mumbai 410 206, Maharashtra (IN). **JHAVER, Manoj** [IN/IN]; Ashok Chandak, B-607, Dheeraj Pooja, Chincholi Bunder Road, Malad (West), Mumbai 400 064, Maharashtra (IN).

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(54) Title: **MODIFIED POLYETHYLENE, TEREPHTHALATE FOR LOW TEMPERATURE DYEABILITY, CONTROLLED SHRINKAGE CHARACTERISTICS AND IMPROVED TENSILE PROPERTIES**

(57) Abstract: The modified polyethylene terephthalate is a copolymer formed from terephthalic acid or its ester, ethylene glycol, a flexible long chain aliphatic dicarboxylic acid or its ester, and a hydroxy terminated polyether polyol or acyclic diol or aliphatic diol. The modified polyethylene terephthalate filament, staple fiber, yarn and resultant fabric is dyeable with a disperse dye without dye carrier at low temperature of about 100°C. The dyed filament, staple fiber, yarn and resultant fabric has a dye index greater than 100, and preferably at least about 120 to 600 with controlled shrinkage of 6 to 10%.

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